NASA Procedural Requirements

NPR 8715.7A
Effective Date: February 24, 2014
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COMPLIANCE IS MANDATORY

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Subject: Expendable Launch Vehicle (ELV) Payload Safety Program

Responsible Office: Office of Safety and Mission Assurance

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Preface

P.1 Purpose

This NASA Procedural Requirements (NPR) defines the Agency ELV Payload Safety Program. This NPR contains NASA's policy, roles and responsibilities, and safety review process requirements for safeguarding people and resources (including flight hardware and facilities) from hazards associated with payloads that will fly on uninhabited Expendable Launch Vehicles (ELVs) (i.e., ELV payloads), including hazards associated with payload to launch vehicle integration, multiple payloads, payload-related Ground Support Equipment (GSE), and ground processing. This NPR provides for implementation of Safety and Mission Assurance (SMA) Technical Authority with regard to safety concerns associated with ELV payload projects.

Note: The Agency ELV Payload Safety Program focuses on what launch ranges have traditionally called ground safety (i.e., protection of people and resources from hazards associated with payload testing, processing, integration to the launch vehicle components, and launch). However, to ensure safe payload ground processing, this program provides payload safety requirements related to payload design, production, processing and testing, vehicle integration, launch through payload separation from the launch vehicle, and planned return-to-Earth recovery or sample return. This program ensures coordination with the range flight safety process to address any payload-related public safety concerns. For NASA ELV missions, in-flight operational payload/spacecraft safety after payload separation from the launch vehicle is addressed by the mission assurance process and not by this program. The mission assurance process incorporates various aspects of system safety for the payload's entire life cycle, including the in-flight operational phase. The mission assurance process typically involves mission success risk, cost, and schedule trades. The mission success and any scientific objectives of the payload are the responsibility of the Payload Project Office and are outside the scope of the Agency ELV Payload Safety Program. The Agency ELV Payload Safety Program uses safety review processes and safety requirements to identify and abate hazards. Organizations with resources at risk are represented and involved in the hazard abatement and risk reduction processes.

P.2 Applicability

a. This NPR is applicable to NASA Headquarters and NASA Centers, including Component Facilities and Technical and Service Support Centers. This language applies to the Jet Propulsion Laboratory (JPL), a Federally Funded Research and Development Center (FFRDC), other contractors, grant recipients, non-Government entities, or parties to agreements only to the extent specified or referenced in the appropriate contracts, grants, or agreements. Unless otherwise specified, the term "Center" throughout the rest of this document is meant to include NASA Component Facilities and JPL (an FFRDC).

b. This NPR applies to uninhabited orbital and uninhabited deep space payloads that fly onboard ELVs (including

aircraft-assisted ELVs such as Pegasus) and are managed by NASA, whether developed by NASA or any NASA contractor or independent agency in a partnership with NASA. This NPR does not apply to payloads flown on crewed launch vehicles or payloads that will interface with the International Space Station (ISS). NASA human space flight programs have payload safety concerns beyond those addressed by this NPR. Such programs typically have specific payload safety processes that satisfy the Agency payload safety policy contained in NPR 8715.3, NASA General Safety Program Requirements, and NPR 1800.1, NASA Occupational Health Program Procedures. Human space flight programs (including any program supporting the ISS), after consultation with the NASA ELV Payload Safety Manager, may elect to implement aspects of this NPR as applicable to their operations.

c. This NPR contains requirements that apply to each ELV payload and its design, fabrication, testing, vehicle integration, spacecraft processing, launch, and planned return-to-Earth payload recovery or sample return; payload-provided upper stages flown on ELVs; interface hardware that is flown as part of a payload; and GSE used to support payload-related operations. This NPR does not address spacecraft operations after payload separation from the launch vehicle with the exception of return-to-Earth payload recovery or sample return.

d. This NPR applies to ELV payloads developed under a NASA grant or cooperative agreement (to the extent specified in the grant or agreement) to ensure compliance with Federal, State, and local requirements relating to safety as specified in NPR 5800.1, Grant and Cooperative Agreement Handbook (14 CFR 1260.37) (see paragraph 1.3.7 of this NPR).

e. This NPR does not apply to payloads that will fly on suborbital launch vehicles (such as sounding rockets, balloons, or aeronautical vehicles). Suborbital payloads are subject to the policies and requirements of NPR 8715.3 and applicable local processes and requirements. For example, suborbital launches conducted by Wallops Flight Facility are subject to the Wallops Range Safety Manual (RSM 2002).

f. This NPR does not apply to non-NASA payloads launched from Wallops Flight Facility where NASA is just providing range services, such as for Department of Defense missions or payloads launched under a Federal Aviation Administration commercial launch operator license. Such missions are subject to the local Wallops Range Safety Process and requirements and the regulations and requirements of the other agencies involved.

g. This NPR may apply to small satellites (e.g., CubeSats, Nano-Satellites, Picosatellites) that are easily accommodated and rideshare as auxiliary payloads on a launch vehicle with a primary payload in a non-interference manner (see paragraphs 1.5 and 1.6 of this NPR).

P.3 Authority

a. The National Aeronautics and Space Act, as amended 51 U.S.C. § 20113(a).

b. NPD 8700.1, NASA Policy for Safety and Mission Success.

P.4 Applicable Documents and Forms

a. NASA-STD 8719.24, NASA Expendable Launch Vehicle Payload Safety Requirements.

P.5 Measurement/Verification

Compliance with the requirements contained within this NPR is continuously monitored by the ELV Payload Safety Agency Team, Centers, and by the SMA Technical Authority. Compliance may also be verified as part of selected life-cycle reviews and by assessments, reviews, and audits of the requirements and processes defined within this NPR.

P.6 Cancellation

This NPR cancels NPR 8715.7, Expendable Launch Vehicle Payload Safety Program, dated May 30, 2008.

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